

# The Checklist

A Quarterly Newsletter of the Building Commissioning Association



## CREATIVE POWER



# In This Issue

<b>Letter from the President</b>	<b>2</b>
Mark Miller	
<b>A Letter of Thanks</b>	<b>4</b>
To Our Members	
<b>Election Results 2014</b>	<b>5</b>
<b>Announcing BCA's</b>	<b>7</b>
Redesigned Website & Social Media	
<b>Data Center Commissioning</b>	<b>8</b>
Is Hot - And That's Cool	
<b>Healthcare Commissioning</b>	<b>12</b>
An Owner's Perspective	
<b>Call to Action</b>	<b>15</b>
Volunteer Opportunities Available	
<b>Ten Years of Certifying</b>	<b>16</b>
Commissioning Professionals! What's Next?	
<b>New Corporate Members</b>	<b>16</b>
<b>New CCPs, ACPs and CCFs</b>	<b>17</b>
<b>About BCA</b>	<b>18</b>



## CONTACT US

Building Commissioning Association

1600 NW Compton Drive

Suite 200

Beaverton, OR 97006

877.666.BCXA (2292) Main

503.295.0820 FAX

[www.bcxa.org](http://www.bcxa.org)

## Letter from the President

### Dear Members,

It's nearly the end of 2013! First and foremost, I want to express heartfelt thanks to the Board of Directors for their guidance and support throughout 2013, a keystone year for the BCA. The Board is grateful for the hard work of committee volunteers, including the monumental effort of all who planned and implemented our successful NCBC conference in Denver. This year marked the 15th anniversary of the BCA – thank you to all the members who took time to participate in events, webinars, committee activities and Chapter affairs.

I especially want to thank the BCA staff – Executive Director Liz Fischer and her colleagues, Sheri Adams, Katie Spencer, Crystal Minter and Kirsten Haines – for their remarkable planning, organization and accomplishments this year. It has been incredibly gratifying to see the growth of our professional staff and the positive impact they have been able to make on the Association.

### YEAR IN REVIEW

The recognition of the BCA continues to grow at the national level and beyond. At the beginning of 2013, we participated with numerous industry stakeholders to work on the development of a strategic document to define the role of commissioning in building performance. Additionally, The BCA has been working with the National Institute of Building Sciences (NIBS) and the U.S. Department of Energy to develop a certification accreditation program, and a supporting professional development structure, for commissioning authorities. This program is under way and will continue through 2014 and beyond.

BCA committees are progressing well with strategic planning in our core areas of focus: best practices, professional development, industry collaboration and certification. The resulting strategic plan will be reviewed by the Board in January and approved at the Leadership Conference in St. Augustine, Florida in late January 2014.

BCA's training and webinar programs have been well attended this year and we will continue to focus on the critical technical elements of commissioning. We are also looking at the possibility of expanding webinars in the future to include aspects related to the business of commissioning – please feel free to let staff or leadership know if this might be a helpful area of focus.

I am thrilled to announce that, as of this time, we are welcoming two new BCA provisional chapters in South America. Both Brazil and a second broad area of South America comprising six contiguous countries have officially met eligibility requirements for designation as provisional BCA chapters. Our international scope is expanding, thanks in large part to the efforts of BCA Board Member Jeff Conner, who has visited and helped the highly motivated commissioning groups achieve provisional status. Next year they will each cross the hurdles to become full-fledged chapters.



**Mark Miller** BCA President

## BCA ELECTION RESULTS

November is election month for the BCA's Chapter Board Members and the International Board of Directors. The full election results are listed on page 5.

## IN THIS ISSUE

This issue of the *Checklist* focuses on two kinds of mission critical facilities: hospitals and data centers. Hurricane Sandy had a severe impact on healthcare facilities in New York, resulting in new local codes that spun out of disaster recovery efforts this year. Healthcare facility planning, design and construction will affect commissioning activities. We take a look at the results from an owner's perspective. The "information age" and "big data" are causing the proliferation of data centers everywhere. We talked with four BCA experts about the challenges of commissioning them for continuous uptime, and a comprehensive approach to training commissioning providers. And, on page 4 BCA Executive Director Liz Fischer speaks out on our roles as members in the BCA's critical mission.

## FUTURE FOCUS

NCBC 2014, the 22<sup>nd</sup> annual National Conference on Building Commissioning, will be hosted by the Northeast BCA Chapter in Hartford, Connecticut, May 19<sup>th</sup>-21<sup>st</sup>. Be sure to check out the NCBC website and register early!

This is my third and final year as BCA President. My time as President has been fun and incredibly rewarding and I cherish the relationships that have been developed and the accomplishments made by the Association. I plan to remain active with the BCA in the years to come and will continue to participate on the Board in 2014 to help support the development of the BCA. The commissioning industry faces challenges as demand for our services grows, buildings become increasingly complex, and the expectations for commissioning continues to advance higher. It is my personal objective to continue advocating for the best interests of our profession and the BCA as we achieve high levels of performance in the built environment.

I am grateful to have had the opportunity to serve all of you in the BCA. Thank you, members, for your support and participation. Let's continue to help BCA achieve our mission by sponsoring, attending, renewing and engaging wherever possible.

Wishing you a bright and festive holiday season.

Sincerely,

Mark Miller, PE, CCP  
BCA President



# A Letter of THANKS to Our Members

By Liz Fischer, BCA Executive Director

According to Techopedia, a mission critical system is one that is “essential to the survival of a business or organization.” For the Building Commissioning Association our mission is essential to:

**“...maximize the value of building commissioning to the built environment and its stakeholders. The BCA helps create, promote and provide leadership and education on current and evolving best practices in building commissioning for building owners, operators, designers, constructors and commissioning providers.”**

The BCA staff, the Board, the Chapters and Committees tread the path of this mission every day. It is the core concept that guides our allegiance to delivering the education, information, best practices and opportunities that you – the members – have indicated you value most from the BCA.

The accomplishments of the BCA, both internally and in the changing world of the built environment and its stakeholders, are many. The BCA “is” its membership. You are the subject matter experts, the colleagues, the advisors and mentors who consistently uphold the high standards of the organization and pave the way for the next generation of professionals.

I have had the good fortune to be able to work with and get to know so many BCA members over the last year. To say the least, I'm impressed with your dedication to the practice and ethics of your profession. Your work on best practices documents, our webinar series and training program, serving on regional and international boards, and so much more, have brought significant visibility to this Association at a nationwide – and now global – level. As a result, the BCA has been recognized and invited to participate as a designated contributor in federal planning for the advancement of the commissioning profession.

I believe this is a mission we all must take very seriously.

The BCA has much to do next year to remain on the path in its – and your – critical mission of improving the built environment through commissioning. The association continues to need your knowledge, your

talent, your financial support and, sometimes difficult to share, your time. Your membership renewal invoice will include a list of rewarding volunteer opportunities that we hope you will consider for next year. Please remember to renew.

When you renew, please also consider participating as a volunteer in an area that interests you. We have career-enhancing volunteer opportunities available now with local chapters and the BCA committees. To help you choose now or in the coming months, from now on the BCA *Checklist* will include a list of volunteer opportunities in each issue, so look for ways to get involved and use your talents.

The BCA accomplishes its many goals because you are a part of it. Thank you so much for your time, your resources, and your constant dedication to improving this profession.



Eaton's Energy Solutions Group helps administer systematic new and existing building commissioning approaches that ensure the most efficient use of natural resources that can result in reduced operating costs and risks, improved work environments and productivity, increased traction with sustainability initiatives and compliance with energy legislation.

For more information, please visit [Eaton.com/energysolutions](http://Eaton.com/energysolutions).

# ELECTION RESULTS FOR 2014

## MEET YOUR NEW REPRESENTATIVES!

Let's extend hearty congratulations to the 2014 Building Commissioning Association's newly elected International Board and Chapter Board of Directors.

### International Board Members



**Jay Enck**  
**Director-at-Large**  
Commissioning & Green  
Building Solutions, Inc.



**Tony Rocco**  
**Regional Representative: Canada Region**  
ALR Engineering Services Inc.



**Ed Simpson**  
**Regional Representative: Northwest Region**  
TESTCOMM, LLC



**Tony DiLeonardo**  
**Regional Representative: Mid-Atlantic Region**  
Wick Fisher White

### Chapter Board Members

#### CALIFORNIA



**Bill Carmody**  
L&H Airco



**Charles Hutchinson**  
TKSC



**Steve Carroll**  
Glumac



**Anton Paley**  
American  
Commissioning  
Group, LLC



**Christopher Kerr**  
Glumac



**Robert Gaynor**  
EnerNOC

#### CENTRAL

**Jim Boyanchek**  
Eaton



**Kevin Griesemer**  
G&W Engineering  
Corporation



**Dave Guberud**  
Ring & DuChateau  
Consulting Engineers

#### NATIONAL CAPITAL



**John Runkle**  
Architectural  
Testing, Inc.



**Tracey Jumper**  
Keystone  
Commissioning  
Group Ltd

#### TEXAS

**Brian Hennig**  
HDR Inc



**Jim Thorton**  
CCRD

# ELECTION RESULTS FOR 2014: Chapter Board Members (cont.)

## EASTERN CANADA

---



**David Overton**  
Stantec Performance  
Engineering



**Steven Taylor**  
Hidi Rae Consulting  
Engineers



**Seth Sundar**  
Green Initiatives Inc.



**Crawford Brewer**  
TACE Technical  
Services Ltd.

## NORTHEAST

---



**Saverio Grosso**  
ENERACTIVE  
Solutions



**David Vallerie**  
Strategic Building  
Solutions, LLC

**Gerard Hazel**  
M&E Engineers, Inc.

## NORTHWEST

---



**Scott Esher**  
McKinstry



**Dwight Gray**  
Cooper Zietz  
Engineers



**Scott Harvey**  
Johnson Controls, Inc.

## SOUTHEAST

---



**Robert Knoedler**  
Hanson Professional  
Services



**Tom Foster**  
Commissioning  
WorCx



**Dick Dutro**  
Total Systems  
Commissioning

**Tim Gilbert**  
HESM&A

## SOUTHWEST

---



**Tom Poeling**  
U.S. Engineering  
Company



**Tim Whitley**  
RS&H, Inc.



**Russell Feery**  
Engineering  
Economics, Inc.



**Matt Cooper**  
Group14  
Engineering, Inc.

## WESTERN CANADA

---



**Kevin Thurston**  
Thurston  
Engineering Services



**Brett Crawford**  
CES Engineering



**Boban Ratkovich**  
CES Engineering Ltd.



**Phil Dompierre**  
Integrated Designs  
Inc.

# ANNOUNCING BCA's Redesigned Website & Social Media Launch

We are excited to announce that our newly designed website [www.bcxa.org](http://www.bcxa.org) and brand new social media sites - [YouTube channel](#), [Facebook page](#) and [Twitter feed](#) - are live! We also continue to host the [BCA LinkedIn Group](#). You will enjoy our website's fresh new look, user-friendly navigation and functionality. The site has easy drop down menus with information about BCA membership, education and training events, certification and the BCA Knowledge Center, which will be regularly updated with valuable content for our readers.

Our main goal was to build a user-friendly and simple to navigate site for members and browsers. The new design allows users to quickly find content, thanks to its structure and straightforward design. And, with our new social media outlets, we encourage you to interact and engage with our diverse membership to share issues on whole building commissioning and get access to important industry topics and late-breaking stories.

Enjoy browsing – we hope you'll find more options and information each time you visit. To go directly from here, you can use the links below to find documents you need:

## MEMBERSHIP

- [Overview](#)
- [Essential Attributes](#)
- [Join the BCA](#)
- [Corporate Directory](#)

## TRAINING

- [Upcoming Trainings](#)
- [NCBC 2014 \(National Conference on Building Commissioning\)](#)

## CERTIFICATION

- [Getting Your CCP](#)
- [Getting Your ACP](#)
- [Getting Your CCF](#)
- [List of CCPs](#)
- [List of ACPs](#)

## KNOWLEDGE CENTER

- [BCA Public Library](#)
- [Qualification & Certification](#)
- [The Checklist eNewsletter](#)
- [Career Listings](#)
- [Members Only](#)

For support questions, contact us at: [info@bcxa.org](mailto:info@bcxa.org)



## COMMISSIONING & ENERGY SERVICES



DELIVERING

EXPERTISE, PERSPECTIVE and LEADERSHIP

TO CLIENTS NATIONWIDE

JOIN OUR GROWING TEAM

WITH OFFICES IN

CONNECTICUT ~ NEW YORK ~ MASSACHUSETTS ~

PENNSYLVANIA ~ WASHINGTON DC

CONTACT:

[rgudzmulkey@go-sbs.com](mailto:rgudzmulkey@go-sbs.com)

# DATA CENTER COMMISSIONING Is Hot - And That's Cool

By Diana Bjornskov

The 21<sup>st</sup> century started out as the dawn of the Information Age. Now that we live in the era of "Big Data" it's long past dawn. All that information must be instantly and continuously available to data owners who may or may not own the building in which it's housed. Known as "mission critical," these facilities don't just bank the information – they are the resource for tracking, research, dissemination, decision-making and analysis of people, systems, and all kinds of building, transportation, communication, health and other infrastructures around the world – every single day.

## What Makes A Data Center?

Data centers range from small embedded systems like a server room located in a business office, to colocation of multiple data owners leasing space in a single building, and to global, multi-site, highly resilient and redundant facilities owned and run by large institutions. Generally speaking, data centers are less about occupants than about equipment because of the need for specialized cooling and airflow systems. In some cases, cleanroom-like conditions are required, where airborne contaminants are removed from circulating air. Data centers may be rated according to the Uptime Institute's tier structure, from Tier 1 to Tier 4 (highest reliability, availability and redundancy).

Large financial and government institutions typically operate their own data centers, loading and populating their own servers. On the other hand, in a colocation facility entrepreneurs lease out space with given capacity and density (Watts/square foot), often serving several different tenants within a single block of servers.

## Commissioning Data Centers For Occupancy

ASHRAE 90.1-2010 eliminates the former exclusion of data center commissioning, but no formal codes yet exist specifically for data centers. Some owners want Uptime Institute concurrent certification with the Certificate of Occupancy granted by the Authority Having Jurisdiction – the fire marshall. ASHRAE is creating Standard 90.4P to address data centers, in response to requests to recognize the energy performance profiles unique to data centers.

Most data centers are built with end-users in mind, but are designed to benefit environmental conditions

for equipment more than for people. Temperature, humidity, airflow, enclosure and lighting conditions are designed to ensure efficient server and building performance.

Commissioning all of these facilities starts, of course, with the Owner's Project Requirements (OPR) enumerating design components needed by end users. Often the owner has more personal interaction in the testing phase with a data center project than other building types, overseeing the rigorous testing of 100% of building systems to ensure critical 24/7 performance.

### The Commissioning provider needs to make sure these are covered in the OPR:

- Transfer schemes
- Maintenance requirements
- Flexibility
- Expandability

Joe Dillingham, MEP Coordinator, DPR Construction

In a design/build scenario, some owners have an "on the shelf" design that can be modified to meet the demands of the site. Having the same set of standards from one facility to the next also tends to create a stronger relationship between owner and commissioning provider due to increased familiarity with the OPR, design drawings and construction outcome, and experience among the owner's facilities group, end users, maintenance staff, architect, engineers, general contractor and their subs. Other owners might look to the General Contractor to put a team together and design a data center based on the latest technologies. This reduces the overall cost and shortens the project schedule significantly.

On the other hand, commissioning a colocation data center is more difficult since the end-users may not be identified at the outset and can change any time after construction is complete. Colocation facilities need to be flexible enough to accommodate a variety of end-user needs, equipment reconfiguration and realignment of power distribution and connections – without interruption.

# 5 LEVELS OF COMMISSIONING

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5
Design review constructability	Factory Witness Testing	Energize Equipment	Complete Prefunctional Testing	Integrated Systems Testing
	Site Acceptance	Perform Startup on Equipment	100% Point-to-Point Verification	Owner Training
	Site Inspection	Script Review with Subs		SOP Verification

SOURCE: Mission Critical Magazine Webinar, Joe Dillingham, October 8, 2013

Data center technology evolves quickly. Equipment can become obsolete well within a decade. Servers are becoming smaller, thus an owner may increase the number of servers which, in turn, raises the density and requires adjustments to data center layout, airflow and cooling systems. The commissioning provider should be able to assist the owner in defining plug-and-play capabilities and thinking about the next generation of the facility during initial design.

## Systems Integration

The process of commissioning is the same everywhere: the timing of actions, sequence of operations, etc., and functional testing coordination must occur between the electrical and mechanical commissioning providers and subcontractors.

Systems integration is relatively straightforward for a new data center. Each data center is designed for different occupancy (e.g., Facebook vs. the telephone company). Different backup scenarios and levels of redundancy – emergency generators, UPS, fans, etc. -- are required by different owners, but new systems are designed for integration from the beginning and controls for new facilities are generally one type of architecture.

**System testing is relative to seasons. We usually go back after the warranty period to test cooling systems post-occupancy.**

John Whitfield, Vice President, Primary Integrated Solutions, Inc.

Integrating new systems with an existing infrastructure can be challenging. The original data center was likely built with controls that don't fully integrate with the new control system. For example, monitoring capability, SCADA, critical HVAC, diverse electrical systems and controls must be integrated with the existing building automation system. Commissioning providers should be able to scrub the test and recovery scripts for accuracy. To test the fully integrated system, a data center with its own power system will have the serving utility pull the plug on supply to ensure that the signal goes to UPS and battery power, sends a signal to the emergency generator to power the building; the UPS will sense when normal power is restored and will shift back from battery power.

Challenges encountered by data center commissioning providers are not so different in kind, though some may be more acute, than traditional building commissioning, for example:

**TESTING CREWS:** The sequence of operations for Tier 3 & 4 data centers requires vetted sequences and written test procedures; integrated system testing is very demanding and is usually the last thing done. It can require long hours. Since the project may require 2-3 crews to meet the 24-hour testing rigor, there must be a plan for identifying and mitigating human fatigue.

**VAGUE SPECIFICATIONS:** The Engineer of Record needs to be meticulous – everything is built into the sequence of operations, which becomes more complicated moving from Tier 1 to 4.

**COST OF COMMISSIONING:** Sometimes the commissioning process is undervalued if the project specs are not detailed enough.

**INEXPERIENCED PROJECT PERSONNEL:** Often a general contractor will hire a construction superintendent and MEP Coordinator who are not well versed in managing subs in the right sequence for data centers. Commissioning providers may end up doing that coordination for the general contractors.

Pushing the schedule back. Before getting started, subs need to have a good definition of what 'done' means. Data center construction projects have a finite schedule; in every project, if something gets pushed out of schedule, it's usually commissioning but commissioning increases efficiency in the construction period.

### Location, Location, Location!

Geographic location and associated conditions like seismicity and weather can impact data center design, construction and performance, although the impact is less about sun or snow on the façade and more about interior heat rejection and cooling that must work year round. This needs to be accounted for in the design phase.

One provider says, "Because of the rain, in Oregon and Washington we get the walls up, and then the roof, do the infrastructure afterward and then pour the foundation. On the other hand in Iowa the ground freezes three feet down, so seasonal conditions affect plans and schedules for construction."

**Data center commissioning is like planning and building for the worst case scenario and the maximum design configuration for continuous uninterrupted power and maintainability that will stay on line for 50 years and withstand 100-year events. That's what we're testing for... anything touched by human hands will break at some point.**

Joe Dillingham, MEP Coordinator, DPR Construction

Many owners want to build in remote places – say, Midwest farmlands or, in one case, 30 miles south of the Arctic Circle – where land, energy and other costs are low, and/or economic development incentives are available. The logistics of getting in and out of remote locations (and often very cold places that minimize cooling costs) can limit construction to warmer seasons and often affects the efficient use of time and personnel. Coordination between general contractors, subs and commissioning providers can be difficult to schedule. Given the cost of transporting the project workforce, materials and supplies, owners don't necessarily want to pay for full time commissioning providers, so scheduling proper commissioning review and oversight must be worked out as part of design and construction planning.

Commissioning data centers outside of North America – and there are many! – also requires verbal language, documentation, and cultural translators.

### Data Center Disaster Recovery – Practical Wisdom:

**JOHN WHITFIELD:** "Commissioning a data center is to test out the capability to respond to a loss of power, irrespective of HOW the loss occurs. Most data centers that are "mission-critical" will have a disaster recovery plan that they have developed for internal use. They train and test their personnel to validate their reactions to disasters. Some owners actually build a "sister" site that mirrors the function of the primary, and can act in its place during an extended outage. Design of a data center covers the expected environmental impacts of seismic, hurricane history, earthquakes, etc."

**MIKE EARDLEY:** "Like all commissioning projects, it all goes back to the OPR. What level of redundancy or disaster protection do they require? Facilities can generally be engineered to handle these kind of extreme occurrences, but there is of course the upfront cost. If the investment is worth it to uninterrupted operation, then it becomes part of the OPR. It will be the commissioning provider's role to ask these kinds of questions during the project kickoff with the owner. If not, we will get in a situation post-occupancy, or after an event, where the owner thought he had something that was more disaster proof, but the designer did not understand that was expected. Redundant systems, lighting protection, water removal or site analysis to prevent flooding, are all project considerations."

**KENNY REED:** “Disaster recovery questions might not get asked enough during owners meetings. I’ve done a good share of “emergency power” tests but a smart emergency shutdown sequence can make it possible for some equipment and components to be salvaged in the case of a disaster. I think this all starts during the design review piece of commissioning and OPR where we make sure the team understands what parts of the building need to be protected, and to what extent, from disasters of all kinds.”

**There will always be something that even the most robust facility can’t handle – should there be procedures to transfer data to another site in such an event? If the path of a hurricane has potential for downtime, transfer critical data, those kinds of conversations should be happening in the planning phase.**

Mike Eardley, Associate Vice President, Director of Commissioning, Cannon Design

**JOE DILLINGHAM:** “Lightning strikes normally result in a power outage and we test for that. If the building is struck by lightning we have a lightning protection system. We can only go so far with testing some of the weather scenarios and the results would be unpredictable; that’s why we don’t recommend building in areas susceptible to bad weather.”

### Data Center Commissioning Training

John Whitfield, Vice President at Primary Integration Solutions and BCA Board member, holds a US Department of Energy Data Center Energy Practitioner Certification from a program DOE started in 2009 to improve data center energy efficiency. The program offers two Practitioner tiers – the Generalist, who is certified in accepted data center energy efficiency methods, and the Specialist, who must be a registered mechanical or electrical engineer.

Because there are no formal training programs in data center commissioning, Mr. Whitfield developed and oversees rigorous commissioning training for his data center personnel who travel globally assessing data centers

and testing for single points of failure. Their clients include Fortune 100 companies in the financial and tech sectors, and “every 3-letter agency in Washington, DC.” Based on tiers, there are four levels of training:

- **LEVEL 1:** Orientation and indoctrination, corporate values, how to work with customers, and teamwork – 1½ - 2 days
- **LEVEL 2:** Fundamental Training similar to Electrical 101 & Mechanical 101 college courses, covering individual components and equipment, switchgear, UPS, emergency generators; mechanical systems, etc.
- **LEVEL 3:** Advanced training, split by discipline; Trainee goes deeper into equipment, learns to write test scripts and conduct troubleshooting. Two to four weeks for classroom training, then paired with senior engineer for mentoring. Indoctrination in documents, process, design review and writing the commissioning process.
- **LEVEL 4:** Project on-the-job training with a senior commissioning provider; skills assessment of junior (trainee) and sign off on successful completion.

### Recommended Skills For Data Center Commissioning

- Learn industry best practices through ASHRAE, BCA, Mission Critical webinars and publications
- Develop a network and a mentor... ask around among the BCA regional reps
- Hone your technical skills but don’t focus only on the technical
- Be flexible, and be able to deal with every type of person
- Become a BCCB Certified Commissioning Professional (CCP)
- Stay up to speed on codes, technologies, manufacturers, and learn about new applications

Commissioning a data center is a process that takes time; it’s challenging and unlike any other commissioning exercise. The differentiators? UPS, fast response time, critical load... designing, building and operating for no down time. Ever.

# HEALTHCARE COMMISSIONING: AN OWNER'S PERSPECTIVE

New York Presbyterian Hospital (NYP) is made up of six different campuses with a total building area of over 10 million square feet – five in New York City and one in White Plains, each with projects in various stages of planning, design, construction and operation. Most of the campuses are older buildings; 80 percent are pre-1970s, some are even pre-1930s. The overall capital plan and multitude of projects across NYP's portfolio range from new buildings to renovation, replacement of aging equipment and infrastructure. There is an infrastructure budget and capital program to build or rebuild these systems.

Over a year ago Joseph Lorino, PE, LEED AP, Corporate Director of Facilities Project Implementation, and Christopher Brennan, Director of Facilities Design & Construction – Engineering, joined forces to put together a plan for commissioning all projects at NYP. They lobbied management on the benefits of commissioning. While their efforts were appreciated, “C-level” decision-makers were naturally concerned about the cost of commissioning all projects. Lorino and Brennan drafted a cost matrix based upon the complexity and priority of each project, type of space (medical/surgical space, lab, hospital room, office, etc.), and estimated costs and savings for projects that include a percentage for third-party commissioning in the overall projects. Project Managers agreed to include commissioning on all new projects, but not on those already in progress.

## Getting Started

The facilities team published a request for qualifications of commissioning firms that could handle the size, scope and specialization required for NYP facility projects. Three basic attributes were requirements in order to be considered for qualification: firms must (1) be commissioning-only companies, (2) have significant healthcare experience, and (3) have BCA Certified Commissioning Providers (CCP). Of the submissions, they interviewed six different companies and qualified four to contract with NYP for work on projects.

It was important to develop “facility-dedicated” commissioning firms that would build deep familiarity

with the hospital systems and buildings in their care, especially since as-builts were not always readily available. Two of the qualified providers were selected to manage the commissioning of projects on the three campuses located on the Upper Westside, while the other two firms were assigned to commission the projects on the remaining three sites. Having dedicated commissioning teams avoids the hurdle of re-educating providers and is an excellent bridge for Facilities Operations interaction.

## Commissioning Team Structure

Project commissioning was structured so that commissioning firms would be funded by their project but would report directly to NYP's Facilities Operations Department. Commissioning was to start, at latest, at the beginning of the design phase and, depending on the project size, be included in initial programming. This was a purposeful project team design: after the ribbon-cutting fanfare is over, the Facilities Operations Department is responsible for maintaining the project for the next 50 years.

It was a bumpy road in beginning, according to Lorino. Project managers were accustomed to doing “anything they wanted.” People questioned roles and responsibilities –who's responsible for design reviews, who schedules shutdowns in existing facilities? At first, many project managers objected to getting feedback and recommendations from third party providers, though a few found it helpful from the start.

**Commissioning is only as good as owner commitment. If owners aren't committed to fixing what the commissioning provider finds, then nothing happens.**

On the other hand, the Facilities Operations Department did not have time for design review due to other needs occurring throughout the day.

“They were concerned about operational issues after construction,” says Lorino. “Now, commissioning professionals could do the review and spend an hour with the electrical, plumbing and mechanical managers, and

give them their feedback. It's been over a year since this program began, and all of our project managers now see the benefits – schedule-wise, and the decrease in change orders and call backs. Hospital tenants are very satisfied, we have good air quality, breakers aren't tripping. Those first bumpy roads are now very smooth."

The four commissioning firms are cordial. All meet together with Lorino and Brennan every month, often along with design people from specific projects with specific issues. NYP architects and engineers are acquainted with the commissioning providers, and all understand the policies and procedures. Commissioning providers know that they have support from NYP's Senior Vice President, so they know they are representing the hospital in their work.

### Intercampus Systems Integration

NYP campuses have always been controlled via a single system. It's been easy to design, install, configure and repair building controls. However, the hospital is now

required to bid out to other companies. It will be even more important during design review for commissioning providers to ensure that systems are compatible and that operations people can accept them. A new 450,000 square foot ambulatory care center is in design now, and will be the first to bid outside the previous supplier for building controls vendors. If controls are awarded to another company, then NYP will pursue that company for other installations as well, creating both familiarity with NYP systems and also price competition.

### Healthcare Codes ... And Then Along Came "Sandy"

NYP is subject to New York City and State codes as well as hospital codes and standards. Annual data collection is required for the Center for Medicare/Medicaid Services which constitutes a significant portion of hospital revenue and for the Joint Commission (JCAHO), NFPA and others to ensure maintaining a safe and reliable environment.



Superior building performance starts with superior commissioning

Whether your facility is new or existing, McKinstry's commissioning services are your guarantee of exceptional building performance from the beginning and over the long haul.

For nearly two decades, we have provided commissioning services as a vital component of our integrated delivery process. This expertise enables us to support clients in the design, construction, operation and maintenance of superior facilities that keep tenants comfortable and bottom lines strong.



CONSULTING • CONSTRUCTION • ENERGY • FACILITY SERVICES  
[www.mckinstry.com](http://www.mckinstry.com)

# Healthcare Commissioning: AN OWNER'S PERSPECTIVE (cont.)

And then along came Hurricane Sandy. Not to put too fine a point on it, the “worst natural disaster ever to hit New York City” also changed the face of healthcare commissioning in New York City forever. Hospital corridors were filled with beds and NYP even purchased MASH units to accommodate patients.

On June 11, 2013, Mayor Bloomberg announced PlanNYC’s Special Initiative for Rebuilding and Resiliency, “A Stronger, More Resilient New York.” This 438-page document ([www.nyc.gov/html/sirr/html/report/report.shtml](http://www.nyc.gov/html/sirr/html/report/report.shtml)) includes 12 major hospital and healthcare initiatives as part of City Code, related to facilities and electronic health records. The first six require specific actions for new buildings now, and for existing buildings over years, that require commissioning involvement:

1. Improve the design and construction of new hospitals
2. Require the retrofitting of existing hospitals in the 500-year floodplain
3. Support the Health and Hospitals Corporation’s (HHC) effort to protect public hospital emergency departments from flooding
4. Improve the design and construction of new nursing homes and adult care facilities
5. Require the retrofitting of existing nursing homes in the 100-year floodplain
6. Require the retrofitting of existing adult care facilities in the 100-year floodplain

What does all that mean for new healthcare facilities? It means that, even if already in design, they must be redesigned and built with all major equipment above the 500- or 100-year floodplain, depending on the mission critical nature of the facility. Generators, boilers, chillers, electrical switchgear, fuel tanks, medical vacuum pumps and other equipment can no longer be located in their usual place – the basement. It means that hospitals and critical healthcare facilities will need additional generators and switchgear for chillers, which aren’t typically run on emergency power, to provide required air conditioning during emergencies. It means that new facilities may require a larger footprint, or an additional floor, and all of this means careful review by commissioning professionals to ensure that the new NYC code is followed.

Existing buildings have more time, but they must also be similarly retrofitted in flood plains by 2030. Portions of NYP campuses reside in the 500 year floodplain, such as the Cornell Center’s southeast corner of the complex. As a result, the entire complex is now considered in the floodplain and must be brought up to the new code.

In New York City especially, commissioning providers must be educated to be aware of commissioning procedures for new local laws on hazard mitigation, from design review through pre and functional testing.

## Advice for Healthcare Commissioning

In the healthcare field, facilities are mission critical – they’re about lives. Commissioning providers are responsible for seeing the scope of work and the big picture – how, for example, does one small area affect the whole hospital? Commissioning needs to provide feedback on how design decisions could affect people and operations after the ribbon-cutting ceremony.

It’s about the pebble in the pond effect. NYP expects commissioning feedback such as, what happens in Area X when I have to shut a fan down in Area Y every year? Could there be a code violation? Could the fan shutdown damage other equipment? Could there be a problem for patient services? And NYP expects to discuss solutions, e.g., “an incremental shutdown schedule can be arranged in a way that those systems are never down.”

According to Lorino, in each phase – including training – NYP wants to ensure that commissioning providers put themselves in the shoes of the operations people. We’re essentially asking commissioning providers to imagine they will be the chief engineer of the building, and will be operating and maintaining it for next 30 years. In that context, they must ask themselves, “how would you like this to be built? Build it for accessibility!”

*Commission it as if you’re going to operate it.*



# CALL TO ACTION

## Volunteer Opportunities

By Sheri Adams

Volunteering on BCA committees is a great way to stay connected to important events in the Association and the commissioning profession. You can take advantage of great opportunities to grow, teach and learn by choosing volunteer options that interest you. Here are some examples:

### Professional Development

Help expand the BCA's educational offerings! Develop and review educational content for training commissioning providers. If you are self-motivated and want to be part of this team, the Professional Development Committee is looking for volunteers to participate consistently in the following areas:

- help develop webinar topics and review presentations
- expand BCA educational offerings as subject matter expert
- further develop BCA's training programs

### M&O Committee - Volunteer Request from Committee Chair Darren Draper:

The BCA is looking for members to serve on the Marketing and Outreach Committee. Key objectives of the M&O Committee include promoting the BCA's activities and developments such as the Best Practices, NCBC, and webinar series. The committee is also dedicated to connecting the BCA to other organizations in our industry through outreach and liaison participation. Current volunteer needs include:

- Crafting the BCA Story, branding and "elevator speech" for use by members when promoting the BCA to non-members
- Participating in tailoring a social media plan
- Assisting with planning for promotion of BCA training activities such as webinars and regional BCA conference events
- Conducting marketing research to assess our competitive position in the industry
- Assisting with development and execution of topical surveys that are relevant to the industry and advancement of the BCA

We anticipate that members will commit between two and three hours per month taking part in exciting activities that continue to strengthen the BCA's position as a thought leader in the industry –



nationally and internationally. We hope to have at least one (1) member from each region. We expect that much of this work will be accomplished in 2013 with ongoing maintenance needed in 2014. All interested members should contact Sheri Adams at [sadams@bcxa.org](mailto:sadams@bcxa.org).

### Member Services (New Committee Start-Up):

The BCA is looking for members to serve on the Member Services Committee. The International Board of Directors has directed this committee to evaluate member benefits. We anticipate that members will be asked to commit 2-4 hours a month in meetings and research. Jacob Schu is the Chair of this committee and Ed Faircloth is the Board Liaison (two of the most fun guys in the Association to work with – you won't want to miss this opportunity)! Going once, going twice... All interested members should contact Sheri Adams at [sadams@bcxa.org](mailto:sadams@bcxa.org).



1100 Louisiana, Ste One  
Houston, Texas 77002  
tel: 713 871 8484  
fax: 713 871 8440  
[www.pspaec.com](http://www.pspaec.com)

**PageSoutherlandPage**

The Experts in Total Building Commissioning

# TEN YEARS

of Certifying Commissioning Professionals!

## WHAT'S NEXT?

The Building Commissioning Certification Board (BCCB) is pleased to announce a significant upcoming milestone. BCCB is a non-profit 501(c)(3) Board that is responsible for managing the certification program that awards the Certified Commissioning Professional (CCP), Associate Commissioning Professional (ACP) and Certified Commissioning Firm (CCF). The CCP designation was designed from the very beginning to conform to the Internal Standard Organizations standard ISO 17024. This standard is considered the premier international standard for professional certifications.

As the BCA continues to grow globally, registering our certification program officially under this standard is a priority. As a result, we are well underway to accomplish accreditation through the American National Standards Institute (ANSI) in 2014.

As the first authentic, comprehensive certification for commissioning professionals in the United States, the CCP was originally released in 2004. It was, and is, offered only to providers who complete significant, detailed and verifiable experience and pass a rigorous examination. With 2014 fast approaching, the BCCB is preparing to celebrate 10 years of certifying and recognizing the highest caliber of commissioning professionals.

You can look forward to more information about the BCCB and commissioning certification, and the BCA's approach to building and sustaining the high standards of practice expected in this important profession, in the February 2014 BCA Checklist. We are grateful for the hard work it has taken by many respected professionals to elevate this industry to where it is today. The BCCB's three certification programs, and the hundreds of tested, experienced and certified individuals they represent, are now poised for the next generation of commissioning practices.

The February feature article will highlight the many individuals who initially earned their CCP credentials in that first year and have continued to maintain that credential over the past 10 years. We salute their excellence and continued commitment to the commissioning profession. Stay tuned... and join the team.

The BCA is grateful and proud to announce our **NEWEST** Corporate Members!

- **A & F Partners Consulting**, Sao Paulo, Brazil
- **American Energy Corporation**, Elkton, MD
- **Anthares**, Sao Paulo, Brazil
- **Armand Corporation**, Cherry Hill, NJ
- **Building EnergetiCx, PLLC**, Huntersville, NC
- **Command Commissioning Brasil Ltda**, Sao Paulo, Brazil
- **FN - TECHNICAL SERVICES INSPECTION AND TESTING ELECTRICAL AND MECHANICAL LTD**, Sao Paulo, Brazil
- **JP Harvey Engineering Solutions**, Hampton, VA
- **Karpinski Engineering**, Cleveland, OH
- **LHB Corporation**, Duluth, MN
- **M&E Engineers**, Somerville, NJ
- **Mantest**, Sorocaba, Brazil
- **Pacific Test and Balance, Inc.**, Aiea, HI
- **REVITALIZA CONSULTORES**, Villa Coyoacan, Mexico
- **Shah Smith & Associates, Inc.**, Houston, TX
- **Somar Engenharia Ltda**, Sao Paulo, Brazil
- **Termica Brasil**, Sao Paulo, Brazil
- **Validation Technologies Inc.**, Brockton, MA
- **Whitman, Requardt & Associates, LLP**, Fairfax, VA

In addition to the many benefits BCA members receive, Corporate Members also receive two Individual Memberships and listing on the Corporate Member Directory, accessible to building owners and their representatives in their search for commissioning services.

**BUILDINGstart**

airNAB energySTART buildingTEST

**New photo capture feature!**

Remember what issues and equipment look like with photos.

Capture photos in the field with your iPad or Android device and synchronize the photos back to your main project log.

We support Apple iPad™ and netbooks, laptops or tablets running Windows. **Android Support now available!**

BUILDINGstart green. accurate. fast. 888 524 7622 | www.buildingstart.com

# WELCOME New Certificate Holders!

The BCA congratulates the following individuals on achieving the Certified Commissioning Professional (CCP), Associate Commissioning Professional (ACP) and Certified Commissioning Firm (CCF) designation.

## CCP:

- **Nicholas Baker**, CCP, EIT, LEED AP BD+C, Wood Harbinger Inc., Bellevue, WA\*
- **Bradley Brooks**, Ed.D., CCP, CPMP, LEED AP, Cx Solutions, Sacramento, CA
- **Michael Davis**, CCP, SystemWorks LLC, Ankeny, IA\*
- **Louis DiPierro**, CCP, LEED GA, Genesys Engineering, Highland, NY
- **Sean Doyle**, CCP, LEED AP, QCxP, MacDonald Miller Facilities Solutions, Tacoma, WA
- **David Hall**, CCP, PE, Shah Smith & Associates, Inc., Austin, TX
- **Edward Jones**, CCP, LEED AP, PE, Wilson Jones Commissioning, LLC, Seattle, WA
- **Trevor Nelson**, CCP, CEM, LEED AP, PE, Eaton Energy Solutions, Costa Mesa, CA
- **Ralph Schmitt**, CCP, LEED AP BD+C, Engineering Economics, Inc., Lakewood, CO
- **Edwin Simpson**, CCP, LEED AP TESTCOMM, LLC, Spokane, WA\*

\*Former ACPs who have advanced to the CCP designation.

## ACP:

- **Adam Cheney**, ACP, LEED GA, VIP Energy Services Inc., Waterloo, ON, Canada
- **Brandon Collier**, ACP, Primary Integration Solutions, Inc., Friendswood, TX
- **Raghid Gabrial**, ACP, Hallex Engineering, Mississauga, ON, Canada
- **Janelle Griffin**, ACP, EI, LEED AP, Eaton Corporation, Raleigh, NC
- **Jeffrey Kemper**, ACP, LEED GA, QCxP, HF Lenz Engineers, Johnstown, PA
- **Steven Stratton**, ACP, EIT, LEED GA, Heery International, Purcellville, VA

## CCF\*\*:

- **CFMS-West Consulting**, [www.CFMSWest.ca](http://www.CFMSWest.ca), HQ – Ancaster, ON, Canada
- **Facility Performance Associates, LLC**, [www.FacilityPerformanceAssociates.com](http://www.FacilityPerformanceAssociates.com), HQ – Dallas, TX
- **Primary Integration Solutions, Inc.**, [www.PrimaryIntegration.com](http://www.PrimaryIntegration.com), HQ – McLean, VA
- **Questions & Solutions Engineering, Inc.**, [www.QSEng.com](http://www.QSEng.com), HQ – Chaska, MN

## Maximizing Building Performance While Improving Our Environment



 **Engineering Economics, Inc.**

EEI is pleased to be a founding member of the BCA and provider of commissioning & retro-commissioning services since 1991. Contact us today to see how we can help you achieve your goals.

[www.eeiengineers.com](http://www.eeiengineers.com)

\*\*The Certified Commissioning Firm (CCF) is the BCA's certification offering for companies that meet the highest standards of commissioning best practices. Firms earning the CCF designation stand out among competitors and are eligible to work where a firm certification is required. Eligibility includes having a CCP on staff and providing demonstrated excellence in the field of commissioning. This new certification, available only since the Summer of 2013, has been secured by large and small commissioning firms in the United States and Canada. Refer to the CCF Candidate Manual and Application on the BCA website for details.



NCBC 2014 | May 19-21, 2014 | Hartford, CT



## ABOUT BCA

The Building Commissioning Association (BCA) is an international non-profit organization that serves as the recognized authority and resource on commissioning. Our membership is made up of professionals from the commercial building industry, committed to the highest standards and practices for the commissioning process.

The mission of the Building Commissioning Association is to guide the building commissioning industry by advancing best practices and education throughout the building industry, and promoting the benefits of building commissioning to achieve buildings that work. The BCA supports certification programs that set a high bar for the commissioning professionals who manage the total building commissioning process.



### CONTACT US

Building Commissioning Association  
1600 NW Compton Drive  
Suite 200  
Beaverton, OR 97006

877.666.BCXA (2292) Main  
503.295.0820 FAX

[www.bcxa.org](http://www.bcxa.org)

## The Future is Yours to Build



**Commissioning Authority Training powered by PECCI** combines convenient online learning with a hands-on laboratory experience. We can give entry-level professionals a foundation of knowledge and offer veterans a la carte professional development courses.

Visit [learn.peci.org](http://learn.peci.org) to view a sample lesson, register for online curriculum, and learn more about the in-person labs.

PECCI®

Delivered in partnership with:



[learn.peci.org](http://learn.peci.org)

